

ABSTRACT OF THE INVENTION

An image rejection mixer includes first and second mixers, a phase shift circuit and a summer. The first mixer receives an RF input signal and a first local oscillator (LO) signal and generates a first intermediate frequency (IF) output signal. The second mixer receives the RF input signal and a second LO signal and generates a second IF output signal. The first LO signal is a phase lag signal ($\sin \omega_{\text{lot}}$) and the second LO signal is a phase lead signal ($-\cos \omega_{\text{lot}}$), where ω_{lot} is a frequency signal generated by a local oscillator. The phase shift circuit is connected between the summer and the first mixer, receives the first IF output signal and generates a phase lag signal. The phase shift circuit causes the phase lag signal to lag the first IF output signal by about 90 degrees. The summer is connected to the phase shift circuit and the second mixer, receives the second IF output signal and the phase lag signal, and generates a combined IF output signal. The image rejection mixer is switchable between high and low side injection simply by inverting the second LO signal.